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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/587,953	08/02/2006	Michael Roberts	Q96287	5705

23373 7590 12/30/2009

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EXAMINER	
MAPA, MICHAEL Y	

ART UNIT	PAPER NUMBER
2617	

NOTIFICATION DATE	DELIVERY MODE
12/30/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/587,953	ROBERTS, MICHAEL	
	Examiner	Art Unit	
	Michael Mapa	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 November 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2 and 4-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2 and 4-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The applicant has amended the following:

Claims: 1 and 9 have been amended.

Claims: 2, 4-8 and 10 have not been amended.

Claims: 3 have been cancelled.

Response to Arguments

2. Applicant's arguments filed 11/20/09 have been fully considered but they are not persuasive.

The applicant argues features wherein an optimization process for radio resources allocated to an MBMS service (Multimedia Broadcast/Multicast Service) broadcast by a source to a group of mobile terminals located in a limited geographic zone that is covered by at least one cellular telecommunication network, comprising: counting the mobile terminals present in said geographic zone, fixing a percentage of mobile terminals that should receive the MBMS service, broadcasting signals having a determined power level, determining a percentage of mobile terminals that respond to signals that have been broadcast, reducing an emission power level, as long as the fixed percentage of mobile terminals has not been reached, defining a first criterion representing a minimum level of reception quality by the mobile terminals of the service broadcast in said geographic zone, defining a second criterion representing a distance

between the broadcast source and the mobile terminals for using a shared channel in said geographic zone and for which a reception of the broadcast service is optimal, defining a third criteria representing the fixed percentage of mobile terminals that has been reached at a fixed emission power level, establishing a signalization connection between the cellular telecommunication network and the mobile terminals located in a broadcast zone that fulfill the first, second and third criteria and transmitting the MBMS service to said mobile terminals at said fixed emission power level wherein activation and synchronization of said mobile terminals in said shared channel is carried out by said mobile terminals.

3. Before addressing the applicant's arguments, the examiner would like to clarify the position taken with respect to the applied art:

Chuah discloses a method and apparatus for providing a multicast services in a wireless communication environment wherein Chuah discloses a telecommunications network having a base station broadcasting and providing MBMS service to mobile terminals within its coverage area and dynamically changing the output power of the base station to encompass a smaller are if the number of users are located closer to the base station thereby reducing power output. Chuah continues to disclose establishing a threshold (select pilot Ec/Ior) and broadcasting to all users within its coverage, wherein the users measure power to noise ratios and compare to the broadcast threshold and report the measured values to the network where the base station sorts the measured values after receiving the reports and determine the number of users or percentage of

users to use a first transmission scheme (broadcast channel) or a second transmission scheme (dedicated channel).

Kim discloses the UE performing frame synchronization and cell synchronization by receiving a PCPICH (primary-common pilot channel) which is identical to a PBMSCH (physical broadcast multicast shared channel) as well as sending out an MBMS request message for a specific service, therefore activation and synchronization is carried out by said mobile terminal.

With regards to the applicants arguments that Chuah fails to disclose "determining a percentage of mobile terminals that respond to signals that have been broadcast" and that Chuah merely determines the number of users that report their received pilot signal strength to the network and does not determine the percentage of users that respond to the broadcast signal, the examiner respectfully disagrees. Chuah discloses establishing a threshold and broadcasting to all users and the users measuring power to noise rations and reporting the measured values to the network and wherein the base station sorts the measured values after receiving the reports and determines which users will be supported via a first transmission scheme (broadcast channel) or a second transmission scheme (dedicated channel). Therefore one of ordinary skill in the art would recognize that the invention of Chuah determines the percentage of users that will be using a first transmission scheme and a percentage of users that will be using a second transmission scheme based on the reports received from the users.

With regards to the applicant's arguments that Chuah in view of Kim fails to disclose "reducing an emission power level, as long as the fixed percentage of mobile terminals has not been reached", the examiner respectfully disagrees. Chuah discloses determining the number of users that will be supported by a first transmission scheme (broadcast channel) and determining the remaining users to be supported by a second transmission scheme (dedicated channel) and discloses dynamically changing the output power of the base station to encompass a smaller area depicted by the shaded region (Figs. 1A-1B & 3 & 4 & Paragraphs [0026] & [0006] of Chuah). Therefore when the number of users for the first and second transmission scheme are determined, the base station will dynamically change the output power of the base station by reducing it until it reaches the fixed percentage of users for the first transmission scheme (broadcast channel) for the purpose of reducing the output power of the base station and saving network resources by not having the base station broadcast at full power and instead using a first and second transmission scheme.

With regards to the applicants arguments that Chuah in view of Kim fails to disclose "defining a third criteria representing the fixed percentage of mobile terminals that has been reached at a fixed emission power level; establishing a signalization connection between the cellular telecommunication network and mobile terminals located in a broadcast zone that fulfill the first, second and third criteria", the examiner respectfully disagrees. Chuah discloses the users reporting the measured values to the network and after receiving reports of all of the measured values, sorting and determining the number of users that will be supported by a first transmission scheme

(broadcast channel) and determining the remaining users to be supported by a second transmission scheme (dedicated channel) and wherein the MBMS service/information is sent to the users via the respective transmission schemes, therefore the total number of users are separated into percentages that will be supported by either a first or second transmission scheme and having a criteria wherein only the percentage of the users in the first transmission scheme will receive the transmission via a broadcast channel and the remaining users will receive the transmission via a dedicated channel and as such a signalization connection between the cellular telecommunication network and mobile terminals located in the broadcast zone that fulfill the first, second and third criteria are established.

4. Therefore, the argued limitations read upon the cited references or are written broad such that they read upon the cited references, as follows:

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1 and 9 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to

one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The examiner requests the applicant to provide support for the applicants amendments to claims 1 and 9 specifically "defining a third criteria representing the fixed percentage of mobile terminals that has been reached at a fixed emission power level; establishing a signalization connection between the cellular telecommunication network and mobile terminals located in a broadcast zone that fulfill the first, second and third criteria" in claim 1 and "means for establishing connections with said cellular telecommunication network in the cases in which the fixed percentage of mobile terminals has been reached at a fixed emission power level" in claim 9.

For the purpose of examination and the rejection provided below, the examiner will interpret the claims to not have a 112 rejection.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1-2, 4-6, and 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chuah et al. (US Patent Publication 2005/0085254 herein after referenced as Chuah) in view of Kim et al. (US Patent Publication 2003/0119452 herein after referenced as Kim).

Regarding claim 1, Chuah discloses:

The applicant claims "An optimization process for radio resources allocated to an MBMS service (Multimedia Broadcast/Multicast Service) broadcast by a source to a group of mobile terminals located in a limited geographic zone that is covered by at least one cellular telecommunication network" (Fig. 4 & Paragraph [0017] of Chuah, wherein Chuah discloses a cellular network with a group of mobile terminals within coverage of the base station and using MBMS service and increasing cost savings and reducing power requirements).

The applicant claims "comprising: counting the mobile terminals present in said geographic zone" (Fig. 3 & Paragraph [0026] of Chuah, wherein Chuah discloses determining the number of users).

The applicant claims "fixing a percentage of mobile terminals that should receive the MBMS service" (Figs. 3 & 4 & Paragraph [0026] of Chuah, wherein Chuah discloses determining the number of users that will be supported by a first transmission scheme and determining the remaining users to be supported by a second transmission scheme, therefore a percentage is fixed on the total number of users to determine which users will receive the first or second transmission scheme).

The applicant claims "broadcasting signals having a determined power level" (Figs. 3 & 4 & Paragraph [0026] of Chuah, wherein Chuah discloses determining the number of users that will be supported by a first transmission scheme (broadcast channel) and determining the remaining users to be supported by a second transmission scheme (dedicated channel), therefore the users within the area 402 are receiving broadcasted signals at a determined power level).

The applicant claims "determining a percentage of mobile terminals that respond to signals that have been broadcast" (Figs. 3 & 4 & Paragraphs [0025]-[0026] of Chuah, wherein Chuah discloses the users reporting the measured values to the network and after receiving reports of all of the measured values, sorting and determining the number of users that will be supported by a first transmission scheme (broadcast channel) and determining the remaining users to be supported by a second transmission scheme (dedicated channel)).

The applicant claims "reducing an emission power level, as long as the fixed percentage of mobile terminals has not been reached" (Figs. 1A-1B & 3 & 4 & Paragraphs [0026] & [0006] of Chuah, wherein Chuah discloses determining the number of users that will be supported by a first transmission scheme (broadcast channel) and determining the remaining users to be supported by a second transmission scheme (dedicated channel) and discloses dynamically changing the output power of the base station to encompass a smaller area depicted by the shaded region, therefore when the number of users for the first and second transmission scheme are determined, the base station will dynamically change the output power of

the base station by reducing it until it reaches the fixed percentage of users for the first transmission scheme (broadcast channel) for the purpose of reducing the output power of the base station and saving network resources).

The applicant claims "defining a first criterion representing a minimum level of reception quality by the mobile terminals of the service broadcast in said geographic zone" (Fig. 3 & Paragraph [0024] of Chuah, wherein Chuah discloses measuring power to noise ratios and determining if they are below a threshold).

The applicant claims "defining a second criterion representing a distance between the broadcast source and the mobile terminals for using a shared channel in said geographic zone and for which a reception of the broadcast service is optimal" (Fig. 4 & Paragraph [0022] of Chuah, wherein Chuah discloses the users outside of the threshold region 402 of the cell coverage area 106 having different power requirements as the users that are closer to the base station, therefore a criterion representing a distance between a broadcast source and the mobile terminals).

The applicant claims "defining a third criteria representing the fixed percentage of mobile terminals that has been reached at a fixed emission power level" (Figs. 3 & 4 & Paragraphs [0025]-[0026] of Chuah, wherein Chuah discloses the users reporting the measured values to the network and after receiving reports of all of the measured values, sorting and determining the number of users that will be supported by a first transmission scheme (broadcast channel) and determining the remaining users to be supported by a second transmission scheme (dedicated channel), therefore the total number of users are separated into percentages that will be supported by either a first

or second transmission scheme and having a criteria wherein only the percentage of the users in the first transmission scheme will receive the transmission via a broadcast channel and the remaining users will receive the transmission via a dedicated channel).

The applicant claims "establishing a signalization connection between the cellular telecommunication network and mobile terminals located in a broadcast zone that fulfill the first, second and third criteria and transmitting the MBMS service to said mobile terminals at said fixed emission power level" (Figs. 3 & 4 & Paragraph [0026] of Chuah, wherein Chuah discloses delivering the broadcast to the users depending on the respective transmission scheme).

Chuah fails to explicitly recite "wherein activation and synchronization of said mobile terminals in said shared channel is carried out by said mobile terminals."

In a related field of endeavor, Kim discloses:

The applicant claims "wherein activation and synchronization of said mobile terminals in said shared channel is carried out by said mobile terminals" (Fig. 5 & Paragraphs [0074] & [0076]-[0077] of Kim, wherein Kim discloses the UE performing frame synchronization and cell synchronization by receiving a PCPICH (primary-common pilot channel) which is identical to a PBMSCH (physical broadcast multicast shared channel) as well as sending out an MBMS request message for a specific service, therefore activation and synchronization is carried out by said mobile terminal).

Therefore it would have been obvious to one of ordinary skill in the art to modify the invention of Chuah to incorporate the teachings of Kim for the purpose of improving system performance by increasing service quality (Paragraph [0010] of Kim) as well as

saving network resources by lessening the workload of the base station by having the mobile terminal perform the activation and synchronization.

Regarding claim 2, Chuah in view of Kim discloses:

The applicant claims "A process according to claim 1, wherein said signalization connection is used to count the mobile terminals of a broadcast zone" (Paragraphs [0025]-[0026] of Chuah, wherein Chuah discloses determining the number of users supported by the transmission scheme).

Regarding claim 4, Chuah in view of Kim discloses:

The applicant claims "The process according to anyone of claims 1, wherein said cellular telecommunication network is a UMTS network" (Paragraph [0020] of Chuah, wherein Chuah discloses UTRAN (UMTS Radio Access Network)).

Regarding claim 5, Chuah in view of Kim discloses:

The applicant claims "The process according to claim 4, wherein the first criterion that represents the minimum level of reception quality is determined according to a minimum level of received signal code power (RSCP) measured by code indicated by said cellular telecommunication network" (Paragraphs [0023] & [0004] of Chuah, wherein Chuah discloses measuring the received pilot signal power and continues to disclose a CDMA system, therefore measured by code indicated by said cellular telecommunication network).

Regarding claim 6, Chuah in view of Kim discloses:

The applicant claims "The process according to claim 4, wherein the first criterion that represents the minimum level of reception quality is determined according

to a signal-to-noise ratio Ec/N0 that is indicated by said cellular telecommunication network" (Paragraph [0022] of Chuah, wherein Chuah discloses the broadcast threshold to be a ratio of the signal power to the interference power and noise density).

Regarding claim 9, Chuah discloses:

The applicant claims "A mobile terminal aimed at receiving an MBMS service broadcast by a source in a limited geographic zone that is covered by at least one cellular telecommunication network" (Fig. 4 & Paragraph [0017] of Chuah, wherein Chuah discloses a cellular network with a group of mobile terminals within coverage of the base station and using MBMS service and increasing cost savings and reducing power requirements).

The applicant claims "comprising: means for fixing a percentage of mobile terminals that should receive the MBMS service" (Figs. 3 & 4 & Paragraph [0026] of Chuah, wherein Chuah discloses determining the number of users that will be supported by a first transmission scheme and determining the remaining users to be supported by a second transmission scheme, therefore a percentage is fixed on the total number of users to determine which users will receive the first or second transmission scheme).

The applicant claims "means for broadcasting signals having a determined power level" (Figs. 3 & 4 & Paragraph [0026] of Chuah, wherein Chuah discloses determining the number of users that will be supported by a first transmission scheme (broadcast channel) and determining the remaining users to be supported by a second

transmission scheme (dedicated channel), therefore the users within the area 402 are receiving broadcasted signals at a determined power level).

The applicant claims "means for determining a percentage of mobile terminals that respond to signals that have been broadcast" (Figs. 3 & 4 & Paragraphs [0025]-[0026] of Chuah, wherein Chuah discloses the users reporting the measured values to the network and after receiving reports of all of the measured values, sorting and determining the number of users that will be supported by a first transmission scheme (broadcast channel) and determining the remaining users to be supported by a second transmission scheme (dedicated channel)).

The applicant claims "means for reducing an emission power level, as long as the fixed percentage of mobile terminals has not been reached" (Figs. 1A-1B & 3 & 4 & Paragraphs [0026] & [0006] of Chuah, wherein Chuah discloses determining the number of users that will be supported by a first transmission scheme (broadcast channel) and determining the remaining users to be supported by a second transmission scheme (dedicated channel) and discloses dynamically changing the output power of the base station to encompass a smaller area depicted by the shaded region, therefore when the number of users for the first and second transmission scheme are determined, the base station will dynamically change the output power of the base station by reducing it until it reaches the fixed percentage of users for the first transmission scheme (broadcast channel) for the purpose of reducing the output power of the base station and saving network resources).

The applicant claims "means for establishing connections with said cellular telecommunication network in the cases: in which a reception quality level is below a minimum level defined by said cellular telecommunication network for said zone" (Fig. 3 & Paragraph [0024] of Chuah, wherein Chuah discloses measuring power to noise ratios and determining if they are below a threshold).

The applicant claims "in which a distance between the mobile terminal and the broadcast source for using a shared channel in said geographic zone is greater than a distance established in advance by said cellular telecommunication network" (Fig. 4 & Paragraph [0022] of Chuah, wherein Chuah discloses the users outside of the threshold region 402 of the cell coverage area 106 having different power requirements as the users that are closer to the base station, therefore a distance established in advance by the cellular network).

The applicant claims "in which the fixed percentage of mobile terminals has been reached at a fixed emission power level" (Figs. 3 & 4 & Paragraphs [0025]-[0026] of Chuah, wherein Chuah discloses the users reporting the measured values to the network and after receiving reports of all of the measured values, sorting and determining the number of users that will be supported by a first transmission scheme (broadcast channel) and determining the remaining users to be supported by a second transmission scheme (dedicated channel), therefore the total number of users are separated into percentages that will be supported by either a first or second transmission scheme and having a criteria wherein only the percentage of the users in

the first transmission scheme will receive the transmission via a broadcast channel and the remaining users will receive the transmission via a dedicated channel).

Chuah fails to explicitly recite "wherein activation and synchronization of said mobile terminal in said shared channel is carried out by said mobile terminal."

In a related field of endeavor, Kim discloses:

The applicant claims "wherein activation and synchronization of said mobile terminal in said shared channel is carried out by said mobile terminal" (Fig. 5 & Paragraphs [0074] & [0076]-[0077] of Kim, wherein Kim discloses the UE performing frame synchronization and cell synchronization by receiving a PCPICH (primary-common pilot channel) which is identical to a PBMSCH (physical broadcast multicast shared channel) as well as sending out an MBMS request message for a specific service, therefore activation and synchronization is carried out by said mobile terminal).

Therefore it would have been obvious to one of ordinary skill in the art to modify the invention of Chuah to incorporate the teachings of Kim for the purpose of improving system performance by increasing service quality (Paragraph [0010] of Kim) as well as saving network resources by lessening the workload of the base station by having the mobile terminal perform the activation and synchronization.

Regarding claim 10, Chuah in view of Kim discloses:

The applicant claims "The mobile terminal according to claim 9, wherein the mobile terminal establishes a connection with said cellular telecommunication network when a signal-to-noise Ec/N0 is lower than a level that has been set in advance by said cellular telecommunication network, or when a minimum level of received signal code power

RSCP is lower than a preset value" (Fig. 3 & Paragraphs [0022], [0024] & [0026] of Chuah, wherein Chuah discloses the broadcast threshold to be a ratio of the signal power to the interference power and noise density, and continues to disclose determining the users below the broadcast threshold and using a second transmission scheme for the users below the broadcast threshold).

9. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chuah et al. (US Patent Publication 2005/0085254 herein after referenced as Chuah) in view of Kim (US Patent Publication 2003/0119452 herein after referenced as Kim) and further in view of Lee et al. (US Patent Publication 2004/0146041 herein after referenced as Lee).

Regarding claim 7, Chuah in view of Kim discloses "The process according to anyone of claim 1." Chuah in view of Kim fails to explicitly recite "wherein said cellular telecommunication network is a GSM/GPRS network."

In a related field of endeavor, Lee discloses:

The applicant claims "wherein said cellular telecommunication network is a GSM/GPRS network" (Paragraph [0005] of Lee, wherein Lee discloses the UMTS as having been evolved from GSM and is used as the European Standard).

Therefore it would have been obvious for one of ordinary skill in the art to modify the invention of Chuah in view of Kim to incorporate the teachings of Lee of having a

GSM standard for the purpose of increasing marketability by conforming to known standards.

Regarding claim 8, Chuah in view of Kim and further in view of Lee discloses:

The applicant claims "The process according to claim 7, wherein the first criterion that represents the minimum level of reception quality is determined according to a parameter (RX lev GSM)" (Paragraph [0023] of Chuah, wherein Chuah discloses measuring the received signal power).

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Mapa whose telephone number is (571)270-

5540. The examiner can normally be reached on MONDAY TO THURSDAY 8:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dwayne Bost can be reached on (571)272-7023. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Nghi H. Ly/
Primary Examiner, Art Unit 2617

/Michael Mapa/
Examiner, Art Unit 2617